MORASH, MELANIE

From: MORASH, MELANIE
Sent: Sunday, June 12, 2016 12:27 PM
To: Wes Hawthorne
Cc: DIAZ, ALEJANDRO; Shaffer, Caleb; Plate, Mathew; Stralka, Daniel; Mezquita, Marlon; Cynthia Woo; Lawrence McGuire; Leslie Lundgren; Lora Battaglia; Rose Condit; Sabrina Morales; Wenqian Dou; Elizabeth Brown; Heather O'Cleirigh; Joseph Innamorati; Linda Niemeyer; Michele Yuen; Morgan Gilhuly; Nancy-Jeanne LeFevre; Peter Bennett; Peter Scaramella; Rebecca Mora; Shau Luen Barker; Shaun Moore; Todd Maiden; Wendy Feng
Subject: EPA Comments - Philips/Offsite OU of the Triple Site - Bioremediation Treatability Study Work Plan and QAPP - Response Requested by July 1st
Attachments: Air Force Guidance Excerpt_In-Situ Bio_Chapter 6.pdf

Good afternoon, Wes,

Thank you for submitting the Quality Assurance Project Plan (QAPP) for the bioremediation treatability study. **Please consider the following set of comments and provide a response-to-comments letter and revised QAPP by Friday, July 1st. In the interim, EPA suggests an in-person meeting with staff from our Quality Assurance office to discuss this plan further and jointly develop the QA approach. Please send me several date and time options that work for you and your team.** We can meet at your offices in Mountain View, if that is most convenient.

This e-mail also contains as an attachment an excerpt from a relevant guidance document, referenced below.

General Comments

1. The responses to general comments are difficult to track in the revised document given the extent of the changes. In the future, please provide details in the response to comments where the revisions have been made in the document.

Responses to General Comments in Comment Response Letter

1. General Comment 6
   Figure 17 still shows "Injection Wells" as the means to implement the EAB. As specified in the document, these are more appropriately "Injection Points." The wells and points associated with the EAB should be labeled as "Proposed." In addition, please consider changing the label "Proposed Treatment Area" to "Proposed Treatability Study Area".

Responses to Specific Comments in Comment Response Letter

1. Specific Comment (SC) 5
   There are two Sections labeled as "1.2" in the revised document. Please renumber these sections.

2. SC 9
   Section 3.2 references the use of injection wells for the direct push technology (DPT) injection of the bioremediation amendments along with the introduction of the abiotic amendment by DPT using injection

points. The DPT injections should be described in the same manner unless there is a reason for specifying them differently, which should be detailed.

3. SC 14
   The last sentence in Section 2.6 states that "SRS-Z and TSI-DC will enhance the remedial performance by introducing an abiotic pathway." TSI-DC is a bioaugmentation culture added to enhance the biological degradation of the chlorinated ethane contaminants. SRS-Z is added to enhance the abiotic removal of Freon-113. These products have been appropriately specified for use in the TS, but they are not intended to be used together. Please revise the statement.

4. SC 19
   Section 3.2, second paragraph still includes a reference to DPT injection though injection wells, while the last paragraph refers to DPT injections though injection points. Please use a consistent reference to injection points when utilizing DPT for injections.

5. SC 23b
   The response references injections into existing wells which is not detailed in the revised document. The specifics for injections into existing wells should be detailed in the document, as the procedures and equipment will be different than with DPT injections to injection points.

6. SC 23d
   Section 3.2.2.1 states that 45 pounds of sodium ascorbate will be used for water de-oxygenation. Please include a statement that the appropriate approvals have been obtained from the Santa Clara County and/or the Water Board will be obtained prior to usage of this chemical.

7. SC 23g
   Section 3.2.2.1 states that the injection boreholes will be sealed with bentonite upon completion of the DPT injections. Tremie-grouting the boreholes with neat cement containing 5% bentonite is recommended. Grouting with bentonite alone may not hold up to the pressurized injections at neighboring injection locations and create a daylighting passageway for the injectate.

8. SC 27
   Please clarify the following entries in the "Data Use and Indications" column of the table imbedded in Section 3.3:

   - Chlorinated VOCs (8010 VOC List) – Please provide a site-specific contaminant list applicable to the EAB treatment evaluation
   - Ferrous Iron – Please replace ferric with ferrous, as an indicator of the reducing state of aquifer.
   - TOC - "naturally total organic content". Please rephrase this description for total organic carbon.
   - pH – pH range of 5-9 range is suitable to support reductive dechlorination, but not ideal across the range.
   - Specific Conductivity – Please change to "Specific Conductance". Increasing levels of specific conductance also act as an indicator of substrate distribution to the monitored location.
   - DO – clarify statement "Indicator if reducing conditions." Please state that DO indicates the extent of aerobic or anaerobic conditions in aquifer.

Comments on QAPP

1. Section 2.5
   Please clarify where the accuracy and precision for analytical methods are provided.

2. Sections 2.7.1 and 2.7.2
   Please clarify if EPA will be provided a copy of laboratory analytical reports and validation records.

3. Section 3.1
   Please clarify which wells will be sampled (preferably in table format), the frequency of the sampling, and the analysis for each well. Provide basic well construction details needed for sampling such as screen intervals, diameter and total depth.

4. Section 3.2.1 –Groundwater Sampling
   This section should be made consistent with the Treatability Study Work plan Section 3.2.2.3, Field Data Collection. The following missing field monitoring parameters should be added: Dissolved Oxygen (DO), and Oxidation Reduction Potential (ORP).

5. Section 3.2.1.1
   Please specify that the pump discharge will be slowed to less than 100 ml/min when collecting samples for VOC analysis and filling VOA vials. In addition include information whether samples for dissolved metals will be field filtered and specify the procedure for field filtering and preserving dissolved metals samples.

6. Section 3.2.1.3, Field Measurements for Groundwater
   DO and ORP measurements specified in the WP are not included in this section. Please clarify how these measurements will be collected and detail the field instrument calibration procedures and documentation.

7. Section 3.3, Sample Handling and Custody
   Please clarify where sample containers, preservatives, and holding time requirements are provided for the methods specified in WP Section 3.3.

8. Section 4.2, Reports to Management.

   The report deliverable should be made consistent with Section 6.0, Data Evaluation and Reporting of cited reference: "Air Force Center for Engineering and Environmental Science Division (AFCEE) “Protocol for In Situ Bioremediation of Chlorinated Solvents using Edible Oil, October 2007."

9. Appendix A, Quality Control Limits

   The list of analytical methods in Appendix A should be made consistent with WP Section 3.3, Sampling and Analysis. The following analytical methods should be added: ORP, DO, and Hydrogen.

Comments on Treatability Study Work Plan

1. Section 3.8, Report

The report deliverable should be made consistent with Section 6.0, Data Evaluation and Reporting of cited reference: AFCEE "Protocol for In Situ Bioremediation of Chlorinated Solvents using Edible Oil, October 2007"

Regards,

Melanie Morash

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